CLAIMS

What is claimed is:

1. A method of upregulating expression of a cardiac specific polynucleotide in a cell, comprising the step of delivering a composition that activates Wnt/β-catenin signaling.

2. The method of claim 1, wherein the cell is in a tissue.

3. The method of claim 1, wherein the tissue is in a mammal.

4. The method of claim 3, wherein the mammal is a human.

5. The method of claim 1, wherein said cardiac specific polynucleotide is selected from the group consisting of Nkx2.5, GATA4, MEF2C, Tbx5, CRIPTO, NODAL, and cardiac myosin heavy chain.

6. The method of claim 1, wherein said cell exhibits spontaneous cell beating.

7. The method of claim 1, wherein the composition is a modulator of Wnt.

8. The method of claim 7, wherein the modulator enhances expression of Wnt.

9. The method of claim 7, wherein the modulator enhances activity of Wnt.

10. The method of claim 1, wherein the composition delivers Wnt to the cell.

11. The method of claim 10, wherein Wnt is delivered as a polynucleotide to the cell.

12. The method of claim 1, wherein the composition delivers Wnt as a polypeptide to the cell.

13. The method of claim 1, wherein the composition is a modulator of β-catenin.

14. The method of claim 13, wherein the modulator enhances accumulation of β-catenin.

15. The method of claim 13, wherein the composition inhibits phosphorylation of β-catenin.

16. The method of claim 15, wherein the composition is an inhibitor of glycogen synthase kinase 3β.

17. The method of claim 16, wherein the composition is lithium.

18. A method of upregulating expression of a cardiac specific polynucleotide in a cell, comprising the step of delivering Wnt to the cell.

19. The method of claim 18, wherein said cardiac specific polynucleotide is selected from the group consisting of Nkx2.5, GATA4, MEF2C, Tbx5, CRIPTO, NODAL, and cardiac myosin heavy chain.

20. The method of claim 18, wherein said cell exhibits spontaneous cell beating.

21. The method of claim 18, wherein Wnt is delivered as a polypeptide to the cell.

22. The method of claim 18, wherein Wnt is delivered as a polynucleotide to the cell.

23. The method of claim 22, wherein the polynucleotide is in a vector.

24. The method of claim 23, wherein the vector is a viral vector.

25. The method of claim 23, wherein the vector is a non-viral vector.

26. The method of claim 24, wherein said viral vector is an adenoviral vector, an adeno-associated vector, a retroviral vector or a lentiviral vector.

27. The method of claim 18, wherein the cell is in a tissue.

28. The method of claim 27, wherein the tissue is in a mammal.

29. The method of claim 28, wherein the mammal is a human.

30. A method of enhancing proliferation or differentiation of a cardiomyocyte cell from a non-cardiomyocyte cell, comprising the step of delivering a composition to said non-cardiomyocyte cell that activates Wnt/β-catenin signaling.

31. The method of claim 30, wherein said non-cardiomyocyte cell is derived from autologous tissue.

32. The method of claim 30, wherein said non-cardiomyocyte cell is derived from allogeneic tissue.

33. The method of claim 30, wherein said non-cardiomyocyte cell is derived from xenogeneic tissue.

34. The method of claim 30, wherein said cardiomyocyte cell is defined as a cell comprising at least one of the following:

expression of Nkx2.5;

expression of GATA4;

expression of Tbx5;

expression of MEF2C; and

expression of cardiac myosin heavy chain.

35. The method of claim 30, wherein said cardiomyocyte cell exhibits spontaneous cell beating.

36. The method of claim 30, wherein said non-cardiomyocyte cell is a fibroblast, a stem cell, a progenitor cell.

37. The method of claim 36, wherein the non-cardiomyocyte is obtained from bone marrow, umbilical cord blood, umbilical tissue, circulating endothelial progenitor cells, cardiac fibroblasts, adipose tissue or skin.

38. A method of treating cardiovascular disease in a subject comprising the step of delivering a composition that activates Wnt/β-catenin signaling to the cell.

39. The method of claim 38, wherein said method is further defined as:

obtaining a cell from the subject;

delivering the composition to activate Wnt/β-catenin signaling to said cell;

growing said cell to form a cell culture; and

delivering at least one cell from said cell culture to said subject.

40. The method of claim 39, wherein said delivering at least one cell from said cell culture to said subject is further defined as:

generating a tissue from said at least one cell from said cell culture; and

administering said tissue to said subject.

41. The method of claim 38, wherein the cardiovascular disease is heart failure.

42. A method of generating myocytes comprising the steps of:

obtaining non-cardiomyocyte cells;

admixing a composition that activates Wnt/β-catenin signaling; and

in *vitro* differentiating the cells to generate myocytes.

43. The method of claim 43, wherein obtaining said non-cardiomyocyte cells comprises performing a tissue biopsy.

44. The method of claim 43, wherein the tissue is bone marrow, umbilical cord blood, umbilical tissue, circulating endothelial progenitor cells, cardiac fibroblasts, adipose tissue or skin.

45. A method of treating a subject suffering from an infarcted myocardium comprising the step of administering to the subject an effective amount of the myocytes of claim 42, wherein the amount repairs the infarcted myocardium.

46. The method of claim 45, wherein the repairs comprise regeneration of cardiomyocytes.

47. A method of repairing an injured myocardium comprising the step of administering to a subject an effective amount of the myocytes of claim 42, wherein the amount is effective in repairing the injured myocardium.

48. The method of claim 47, wherein repairing comprises at least partially restoring structural integrity to the injured myocardium.

49. The method of claim 47, wherein repairing comprises at least partially restoring functional integrity to the injured myocardium.